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=> FILE REG
FILE 'REGISTRY' ENTERED AT 13:39:35 ON 23 NOV 2007
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=> D HIS

     FILE 'HCAPLUS' ENTERED AT 13:02:46 ON 23 NOV 2007
L1            48 S MARSACQ ?/AU
L2          5275 S ROUX ?/AU
L3          5159 S PERRIN ?/AU
L4            16 S BRUNEA ?/AU
L5             1 S L1 AND L2 AND L3 AND L4

     FILE 'REGISTRY' ENTERED AT 13:03:38 ON 23 NOV 2007
L6             1 S 29296-32-0

     FILE 'HCA' ENTERED AT 13:06:05 ON 23 NOV 2007
L7            16 S L6 (L) (QUAT? OR TRIALKYL? OR TETRAALKYL? OR TETRALKLY?
L8         71657 S FUEL?(2A)(CELL OR CELLS)
L9        492767 S ELECTROLY?
L10       245654 S (BATTERY OR BATTERIES OR (ELECTROCHEM? OR ELECTROLY? OR
L11              QUE ELECTROD## OR CATHOD## OR ANOD##
L12            1 S L7 AND (L8 OR L9 OR L10 OR L11 OR 52/SC,SX OR 72/SC,SX)

     FILE 'LREGISTRY' ENTERED AT 13:09:29 ON 23 NOV 2007
L13              STR

     FILE 'REGISTRY' ENTERED AT 13:13:32 ON 23 NOV 2007
L14              SCR 2043 AND 1614
L15           50 S L13 AND L14

     FILE 'LREGISTRY' ENTERED AT 13:14:04 ON 23 NOV 2007
L16              STR L13

     FILE 'REGISTRY' ENTERED AT 13:32:35 ON 23 NOV 2007
L17            0 S L16 AND L14

     FILE 'LREGISTRY' ENTERED AT 13:34:18 ON 23 NOV 2007
L18              STR L16

     FILE 'REGISTRY' ENTERED AT 13:36:49 ON 23 NOV 2007
L19            0 S L18 AND L14
L20            1 S L18 AND L14 FUL
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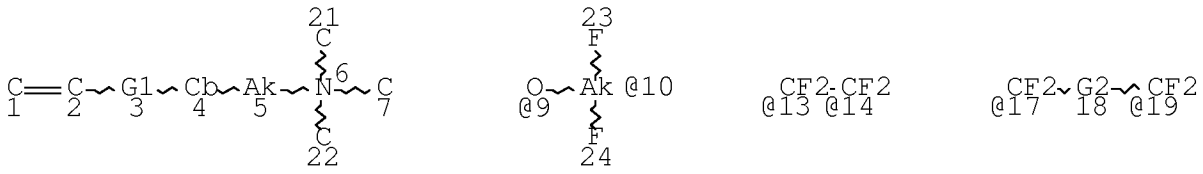
SAV L20 CHU271/A

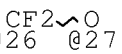
FILE 'HCA' ENTERED AT 13:38:40 ON 23 NOV 2007
L21 1 S L20
L22 2 S L12 OR L21
L23 15 S L7 NOT L22

FILE 'REGISTRY' ENTERED AT 13:39:35 ON 23 NOV 2007

=> D L20 QUE STAT
L14 SCR 2043 AND 1614
L18 STR



Page 1-A



Page 1-B
VAR G1=O/CF2/13-2 14-4/17-2 19-4/9-2 10-4/26-2 27-4
REP G2=(1-8) CF2
NODE ATTRIBUTES:
NSPEC IS RC AT 7
NSPEC IS RC AT 21
NSPEC IS RC AT 22
DEFAULT MLEVEL IS ATOM
GGCAT IS UNS AT 4
GGCAT IS SAT AT 5
GGCAT IS SAT AT 10
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 20

STEREO ATTRIBUTES: NONE
L20 1 SEA FILE=REGISTRY SSS FUL L18 AND L14

100.0% PROCESSED 13978 ITERATIONS 1 ANSWERS
SEARCH TIME: 00.00.01

=> FILE HCA
FILE 'HCA' ENTERED AT 13:39:43 ON 23 NOV 2007

=> D L22 1-2 BIB ABS HITSTR HITIND

L22 ANSWER 1 OF 2 HCA COPYRIGHT 2007 ACS on STN
AN 143:46041 HCA Full-text
TI Polymeric quaternary ammonium hydroxide membranes as carbonation-resistant electrolytes for alkaline fuel cells
IN Marsacq, Didier; Roux, Christel; Perrin, Max; Brunea, John A.
PA Commissariat a l'Energie Atomique, Fr.
SO Fr. Demande, 21 pp.
CODEN: FRXXBL
DT Patent
LA French
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 2863777	A1	20050617	FR 2003-14730	20031216
	FR 2863777	B1	20060217		
	WO 2005069413	A1	20050728	WO 2004-FR3092	20041202

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,

VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

EP 1695402	A1	20060830	EP 2004-805612	200412 02	
R: DE, FR, GB, IT					
JP 2007514290	T	20070531	JP 2006-544487	200412 02	
US 2007128500	A1	20070607	US 2006-582271	200606 09	
PRAI FR 2003-14730	A	20031216			
WO 2004-FR3092	W	20041202			

AB An alk. fuel cell in which the electrolyte is resistant to carbonation has a conductive polymer membrane contg., as active electrolyte, quaternary ammonium hydroxide salts, which are typically prepd. as derivs. of polystyrene, of general formula -[CX1X2-C(X3)-Ar-R-N+R1R2R3.OH-]- (X1 and X2 = H, Cl, or F; X3 = H, Cl, F, and perfluoroalkyl; Ar is an arom. substituent; R = -CH2- and -(CF2)m-CH2- (m = 1-10), or a direct covalent bond; R1, R2, and R3 is alkyl; and n is an integer). Alternatively, a spacer group can be incorporated between the polymer backbone and the arom. group, such as -O-CF2- and -(CF2)1-10. The polymeric quaternary salt membrane has an ionic cond. of ≥0.005 S/cm.

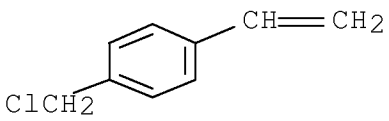
IT 29296-32-0, Poly(4-chloromethylstyrene)
(trialkylamine quaternization of; in prepn. of polymeric quaternary ammonium hydroxide membranes for alk. fuel cells)

RN 29296-32-0 HCA

CN Benzene, 1-(chloromethyl)-4-ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 1592-20-7
CMF C9 H9 Cl



IC ICM H01M004-86
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST quaternary ammonium hydroxide polymer fuel cell electrolyte; alk fuel cell carbonation resistant electrolyte; chloromethylstyrene quaternization fuel cell electrolyte
IT Fuel cells
(alk. fuel cells; polymeric quaternary ammonium hydroxide membranes as carbonation-resistant electrolytes for alk. fuel cells)
IT Conducting polymers
(membranes; polymeric quaternary ammonium hydroxide membranes as carbonation-resistant electrolytes for alk. fuel cells)
IT Fuel cell electrolytes
(polymeric quaternary ammonium hydroxide membranes as carbonation-resistant electrolytes for alk. fuel cells)
IT Quaternary ammonium compounds, uses
(polymers, hydroxides, membranes; polymeric quaternary ammonium hydroxide membranes as carbonation-resistant electrolytes for alk. fuel cells)
IT 29296-32-0, Poly(4-chloromethylstyrene)
(trialkylamine quaternization of; in prepn. of polymeric quaternary ammonium hydroxide membranes for alk. fuel cells)
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 2 OF 2 HCA COPYRIGHT 2007 ACS on STN
AN 93:213308 HCA Full-text
TI Antistatic-treated silver halide photographic materials
PA Fuji Photo Film Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 55057842	A	19800430	JP 1978-130841	197810

JP 58056858 B 19831216
US 4374924 A 19830222 US 1982-351812
198202
24
PRAI JP 1978-130841 A 19781024
US 1979-87837 A1 19791024

AB Ag halide photog. antistatic layers are prepd. by using a dispersion of a polymer of the formula (Z)x(Z1)y[(CH2CRCOZ2NR1R2R3)X-]z (Z = monomer units derived from monomers having ≥2 ethylenic double bonds; Z1 = monomer units derived from an ethylene monomer; Z2 = C1-12 divalent org. moiety; R = H, C1-6 alkyl; R1,R2,R3 = C1-20 alkyl, C7-20 aralkyl; R1R2, R1R3, or R2R3 combinations may form heterocyclic ring with the N; X- = anion; x = 0.25-10, y = 0-90, and z = 10-99 mol%). Thus, p-divinylbenzene-cyclohexyl methacrylate-2-(diethylamino)ethyl methacrylate copolymer was reacted with PhCH2Cl to give a copolymer which was used to form antistatic coatings for photog. films. The polymer exhibited excellent antistatic properties.

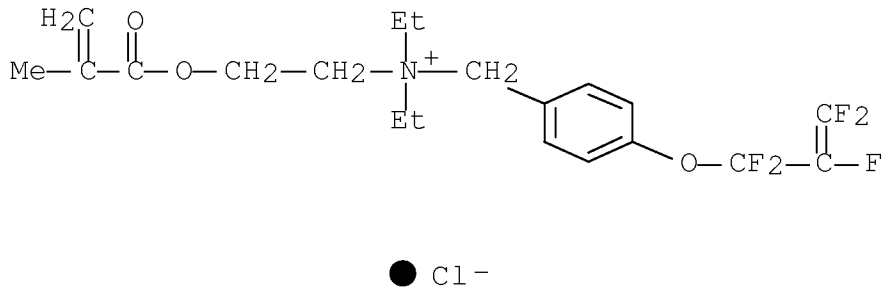
IT 75151-31-4
(antistatic agent, for silver halide photog. films)

RN 75151-31-4 HCA

CN Benzenemethanaminium, N,N-diethyl-N-[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]-4-[(1,1,2,3,3-pentafluoro-2-propenyl)oxy]-, chloride, polymer with cyclohexyl 2-methyl-2-propenoate and 1,4-diethenylbenzene (9CI) (CA INDEX NAME)

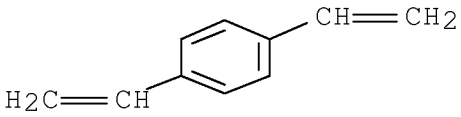
CM 1

CRN 75151-30-3
CMF C20 H25 F5 N O3 . Cl



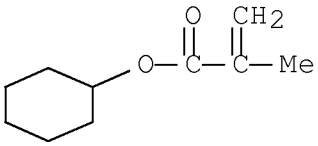
CM 2

CRN 105-06-6
CMF C10 H10



CM 3

CRN 101-43-9
CMF C10 H16 O2



IC G03C001-82; C09K003-16
CC 74-2 (Radiation Chemistry, Photochemistry, and Photographic Processes)
IT 75148-94-6 75151-27-8 75151-29-0 75151-31-4
75182-70-6 75182-71-7 75182-72-8 75182-73-9 75182-74-0
75196-23-5
(antistatic agent, for silver halide photog. films)

=> D L23 1-15 TI

L23 ANSWER 1 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Synthesis and Characterization of Model Dumbbell Polymers

L23 ANSWER 2 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Green synthesis of nitro alcohols catalyzed by solid-supported tributylammonium chloride in aqueous medium

L23 ANSWER 3 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Antimicrobial surfaces prepared using atom transfer radical

polymerization

L23 ANSWER 4 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Controlled radical polymerization. Synthesis of chloromethylstyrene/styrene block copolymers

L23 ANSWER 5 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Design of multifunctional polymeric photosensitizers containing pendant (nitroaryl)oxy groups and quaternary onium salts for photochemical valence isomerization of potassium 3-phenyl-2,5-norbornadiene-2-carboxylate

L23 ANSWER 6 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Alkylamine group-containing styrene polymer with electric conductivity

L23 ANSWER 7 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Study on the heparinization of quaternary ammoniated poly-p-chloromethylstyrene

L23 ANSWER 8 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Quaternization of poly(p-chloromethylstyrene)

L23 ANSWER 9 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Preparation of bactericidal polymers

L23 ANSWER 10 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Preparation of bactericidal polymers bearing quaternary dipyridinum groups

L23 ANSWER 11 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Induced circular dichroism in the 2-benzoylbenzoate anion paired with polymer-supported optically active quaternary ammonium ions

L23 ANSWER 12 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Reverse-osmosis membranes

L23 ANSWER 13 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Image-receptor material for color diffusion-transfer process

L23 ANSWER 14 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Polymers containing porphyrin residues in the side chains

L23 ANSWER 15 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Spontaneous polymerization during the reaction of halogen-containing vinyl monomers with tertiary amines

=> D L23 6 CBIB ABS HITSTR HITIND

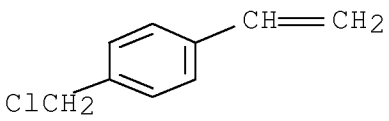
L23 ANSWER 6 OF 15 HCA COPYRIGHT 2007 ACS on STN
116:236744 Alkylamine group-containing styrene polymer with electric conductivity. Kishiki, Hiroshi (Sanyo Chemical Industries Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 04001248 A 19920106 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-101388 19900417.

AB Title polymer comprises repeating units of CH2CR1R2 (R1 = H, Me; R2 = C6H4CH2X, C6H4CH2N+R2R3R4 X-; R2-4 = H, C1-4 alkyl; X = halogen). Thus, a polymer, prepd. by dissolving poly(p-chloromethylstyrene) in 1,2-dichloroethane and reacting with aq. trimethylamine soln. and pptg. in Me2CO, was dissolved in DMF-water mixt. and applied on a glass plate to give a membrane. The membrane was photo-irradiated and heated with MeOH to give a sample showing surface resistivity 3.4 + 107 Ω.

IT 29296-32-0DP, reaction products with trimethylamine
(prepn. of, elec. conductive)
RN 29296-32-0 HCA
CN Benzene, 1-(chloromethyl)-4-ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 1592-20-7
CMF C9 H9 Cl



IC ICM C08L025-18
ICS G03C001-89
CC 37-3 (Plastics Manufacture and Processing)
IT 75-50-3DP, Trimethylamine, reaction products with poly[(chloromethyl)styrene] 29296-32-0DP, reaction products with trimethylamine 44889-28-3DP, polymer with trimethylammoniomethylated polystyrene
(prepn. of, elec. conductive)

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=> D HIS L24-

     FILE 'REGISTRY' ENTERED AT 13:44:24 ON 23 NOV 2007
L24         146 S C9 H9 CL/MF

     FILE 'LREGISTRY' ENTERED AT 13:45:44 ON 23 NOV 2007
                E BENZENE/CN
L25           1 S E3
L26       50156 S 46.150.18/RID

     FILE 'REGISTRY' ENTERED AT 13:46:16 ON 23 NOV 2007
L27          96 S L24 AND L26
L28          11 S L27 AND IDS/CI
L29          39 S L27 AND ?ETHENYL?/CNS
L30           7 S L29 AND  L28
                SEL L30 1-7 RN
                EDIT E1-E7 /BI /CRN
L31        1139 S E1-E7
L32           4 S L31 AND 1/NC

     FILE 'HCA' ENTERED AT 13:51:30 ON 23 NOV 2007
L33          56 S L32(L)(QUAT? OR TRIALKYL? OR TETRAALKYL? OR TETRALKLY?
L34           8 S L33 AND (L8 OR L9 OR L10 OR L11 OR 52/SC,SX OR 72/SC,SX
L35           8 S L34 NOT (L22 OR L23)



=> D L35 1-8 BIB ABS HITSTR HITIND

L35  ANSWER 1 OF 8  HCA  COPYRIGHT 2007 ACS on STN
AN   146:531693  HCA  Full-text
TI   Investigations of the ex situ ionic conductivities at 30 °C
     of metal-cation-free quaternary ammonium alkaline anion-exchange
     membranes in static atmospheres of different relative humidities
AU   Varcoe, John R.
CS   Department of Chemistry, University of Surrey, Guildford, GU2 7XH,
     UK
SO   Physical Chemistry Chemical Physics (2007), 9(12), 1479-1486
     CODEN: PPCPFQ; ISSN: 1463-9076
PB   Royal Society of Chemistry
DT   Journal
LA   English
AB    This article presents the 1st systematic study of the effect of
      Relative Humidity (RH) on the water content and hydroxide ion cond.
      of quaternary ammonium-based Alk. Anion-Exchange Membranes (AAEMs).
      These AAEMs were developed specifically for application in alk.
      membrane fuel cells, where conductivities of >0.01 S cm-1 are
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mandatory. When fully hydrated, an ETFE-based radiation-grafted AAEM exhibited a hydroxide ion cond. of 0.030 ± 0.005 S cm-1 at 30° without addnl. incorporation of metal hydroxide salts; this is contrary to the previous wisdom that anion-exchange membranes are very low in ionic cond. and represents a significant breakthrough for metal-cation-free alk. ionomers. Desirably, this AAEM also showed increased dimensional stability on full hydration compared to a Nafion-115 proton-exchange membrane; this dimensional stability is further improved (with no concomitant redn. in ionic cond.) with a com. AAEM of similar d. but contg. addnl. crosslinking. However, all of the AAEMs evaluated in this study demonstrated unacceptably low conductivities when the humidity of the surrounding static atms. was reduced (RH = 33-91%); this highlights the requirement for continued AAEM development for operation in H2/air fuel cells with low humidity gas supplies. Preliminary studies indicate that the activation energies for OH- conduction in these quaternary ammonium-based solid polymer electrolytes are typically 2-3 times higher than for H+ conduction in acidic Nafion-115 at all humidities.

IT 9080-67-5 9080-67-5D, reaction products with trimethylamine and potassium hydroxide
(ionic conductivities of metal-cation-free quaternary ammonium alk. anion-exchange membranes in static atmospheres of different relative humidities)

RN 9080-67-5 HCA
CN Benzene, (chloromethyl)ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 30030-25-2
CMF C9 H9 Cl
CCI IDS

D1—CH_2—Cl

D1—CH═CH_2

RN 9080-67-5 HCA
CN Benzene, (chloromethyl)ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 30030-25-2
CMF C9 H9 Cl
CCI IDS

D1—CH_2—Cl

D1—CH═CH_2

CC 76-1 (Electric Phenomena)
Section cross-reference(s): 52, 66, 72
IT Activation energy
Anion exchange membranes
Electrolytes
Fuel cells
Gamma ray
Humidity
Hydration, chemical
Ionic conductivity
Radiation
(ionic conductivities of metal-cation-free quaternary ammonium alk. anion-exchange membranes in static atmospheres of different relative humidities)
IT 9080-67-5 9080-67-5D, reaction products with trimethylamine and potassium hydroxide
(ionic conductivities of metal-cation-free quaternary ammonium alk. anion-exchange membranes in static atmospheres of different relative humidities)
RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 2 OF 8 HCA COPYRIGHT 2007 ACS on STN
AN 129:179182 HCA Full-text
TI A humidity sensor using crosslinked poly(chloromethylstyrene)
AU Furukawa, Teruyuki; Matsuguchi, Masanobu; Sakai, Yoshiro
CS Faculty of Engineering, Ehime University, Matsuyama, 790, Japan
SO Chemical Sensors (1997), 13(Suppl. B, Proceedings of the 25th Chemical Sensor Symposium, 1997), 89-92

CODEN: KAGSEU
PB Denki Kagakkai Kagaku Sensa Kenkyukai
DT Journal
LA Japanese
AB Poly(chloromethylstyrene) was simultaneously cross-linked and quaternized by the reaction with N,N,N',N'-tetramethyl-1,6-diaminohexane on the surface of an alumina substrate which has a pair of platinum electrodes on it. The impedance of this device decreased as the relative humidity increased. The device with a higher degree of quaternization showed a higher sensitivity due to the increase in the no. of hydrophilic ammonium group. The hysteresis also depended on the degree of quaternization. The diffusion const. of water in the film was estd. according to the std. Fickian model. As the degree of quaternization increased, the diffusion const. increased, resulting in a decrease in hysteresis.
IT 9080-67-5, Poly(chloromethylstyrene)
(crosslinked and quaternized by the reaction with N,N,N',N'-tetramethyl-1,6-diaminohexane; a humidity sensor using crosslinked poly(chloromethylstyrene))
RN 9080-67-5 HCA
CN Benzene, (chloromethyl)ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 30030-25-2
CMF C9 H9 Cl
CCI IDS

D1—CH_2—Cl

D1—CH═CH_2

CC 59-1 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 76, 79
IT 9080-67-5, Poly(chloromethylstyrene)
(crosslinked and quaternized by the reaction with N,N,N',N'-tetramethyl-1,6-diaminohexane; a humidity sensor using crosslinked poly(chloromethylstyrene))

L35 ANSWER 3 OF 8 HCA COPYRIGHT 2007 ACS on STN
AN 123:147512 HCA Full-text
TI Humidity sensor durable at high humidity using simultaneously crosslinked and quaternized poly(chloromethyl styrene)
AU Sakai, Yoshiro; Sadaoka, Yoshihiko; Matsuguchi, Masanobu; Sakai, Hiroki
CS Department of Applied Chemistry, Faculty of Engineering, Ehime University, 3, Bunkyo-cho, Matsuyama, 790, Japan
SO Sensors and Actuators, B: Chemical (1995), B25(1-3), 689-91
CODEN: SABCEB; ISSN: 0925-4005
PB Elsevier
DT Journal
LA English
AB In order to prep. a resistive-type humidity sensor that is durable at high humidities or even in dewing, poly(chloromethyl styrene) is simultaneously crosslinked and quaternized (i.e., a quaternary ammonium group is added to the polymer) by the reaction with N,N,N',N'-tetramethyl-1,6-hexanediamine on the surface of an alumina substrate on which a pair or gold electrodes is previously deposited. The sensor is durable even after soaking in water for two hours. The response time is shorter in samples with a higher degree of quaternization. An interpenetrating polymer network (IPN) film is also formed on a similar substrate using the crosslinked quaternized poly(chloromethyl styrene) and ethyleneglycol dimethylacrylate. A sensor based on the IPN film has a shorter response time than a sensor based on the crosslinked quaternized poly(chloromethyl styrene).
IT 9080-67-5, Poly(chloromethyl styrene)
(humidity sensor with crosslinked and quaternized poly(chloromethyl styrene))
RN 9080-67-5 HCA
CN Benzene, (chloromethyl)ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 30030-25-2
CMF C9 H9 Cl
CCI IDS

D1—CH_2—Cl

D1—CH═CH_2

CC 47-8 (Apparatus and Plant Equipment)
IT 111-18-2, N,N,N',N'-Tetramethyl-1,6-hexanediamine 9080-67-5, Poly(chloromethyl styrene)
(humidity sensor with crosslinked and quaternized poly(chloromethyl styrene))

L35 ANSWER 4 OF 8 HCA COPYRIGHT 2007 ACS on STN
AN 122:95371 HCA Full-text
TI A solid-state pH sensor based on a Nafion-coated iridium oxide indicator electrode and a polymer-based silver chloride reference electrode
AU Kinlen, Patrick J.; Heider, John E.; Hubbard, David E.
CS Monsanto Chemical Group, St. Louis, MO, 63167, USA
SO Sensors and Actuators, B: Chemical (1994), B22(1), 13-25
CODEN: SABCEB; ISSN: 0925-4005
PB Elsevier
DT Journal
LA English
AB As an alternative to the glass pH electrode, an entirely solid-state pH sensor (pH-sensing and ref. electrodes) was developed based on an annealed permselective polymer(Nafion)-coated Ir oxide pH indicator electrode and a polymer-modified Ag-Ag chloride ref. electrode. When a soln. of Nafion is coated onto the Ir oxide surface and annealed at 210°, it becomes permselective to cations. The membrane thus transports protons, but attenuates the effects of anionic oxidizing or reducing (redox) species that interfere with the response of an uncoated electrode. The ref.-electrode design involves coating a Ag-Ag chloride surface with a chloride-ion-contg. polymer (e.g., NEt3 quaternized polychloromethylstyrene). The chloride ion is trapped within this polymer layer by encapsulating it with a Nafion outer layer. After annealing, the Nafion membrane effectively blocks chloride-ion diffusion to the test soln. and maintains a const. chloride-ion activity on the Ag chloride surface; thus a const. electrode potential is maintained. Several sensor designs based on coated wires, cermets and alumina ceramics were evaluated for pH

response and stability. Distinctive features of the solid-state technol. include glass-free construction, chem. resistance and high impact strength.

IT 9080-67-5D, Polychloromethylstyrene, triethylamine quaternized
(solid-state pH sensor based on Nafion-coated iridium oxide indicator electrode and polymer-based silver chloride ref. electrode)

RN 9080-67-5 HCA

CN Benzene, (chloromethyl)ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 30030-25-2
CMF C9 H9 Cl
CCI IDS

D1—CH_2—Cl

D1—CH═CH_2

CC 79-2 (Inorganic Analytical Chemistry)
Section cross-reference(s): 72

ST solid state pH sensor Nafion based; iridium oxide indicator electrode Nafion coated; polymer based silver chloride ref electrode

IT Electrodes
Sensors
pH
(solid-state pH sensor based on Nafion-coated iridium oxide indicator electrode and polymer-based silver chloride ref. electrode)

IT Polyoxyalkylenes, analysis
(fluorine- and sulfo-contg., ionomers, solid-state pH sensor based on Nafion-coated iridium oxide indicator electrode and polymer-based silver chloride ref. electrode)

IT Fluoropolymers
(polyoxyalkylene-, sulfo-contg., ionomers, solid-state pH sensor based on Nafion-coated iridium oxide indicator electrode

and polymer-based silver chloride ref. electrode)

IT Ionomers
(polyoxyalkylenes, fluorine- and sulfo-contg., solid-state pH sensor based on Nafion-coated iridium oxide indicator electrode and polymer-based silver chloride ref. electrode)

IT Electrodes
(ref., solid-state pH sensor based on Nafion-coated iridium oxide indicator electrode and polymer-based silver chloride ref. electrode)

IT 7783-90-6, Silver chloride, analysis 9080-67-5D, Polychloromethylstyrene, triethylamine quaternized 12030-49-8, Iridium dioxide
(solid-state pH sensor based on Nafion-coated iridium oxide indicator electrode and polymer-based silver chloride ref. electrode)

L35 ANSWER 5 OF 8 HCA COPYRIGHT 2007 ACS on STN
AN 109:213592 HCA Full-text
TI Batteries having conductive polymer-containing polymer membranes
IN Sada, Toshikatsu; Saeki, Kiyoko
PA Tokuyama Soda Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

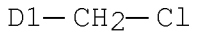
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 63141271	A	19880613	JP 1986-287615	19861204
	JP 08028220	B	19960321		
PRAI	JP 1986-287615		19861204		

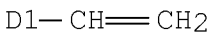
AB The title batteries have a polymer membrane contg. an unevenly distributed conducting polymer between their anode and cathode. The polymer membrane is an anion- or cation-exchanger membrane. Thus, a Neosepta AM1 membrane was placed in contact with a 3% pyrrole soln. on 1 side for 24 h under stirring of the soln. to sat. the membrane with pyrrole, then the membrane was placed in contact with a 5% aq. FeCl3 soln. on the same side for 4 h under stirring. The pyrrole-impregnated side of the membrane turned black after the treatment. A battery was obtained by pressing Pt plates on both side of the treated membrane. The battery had a voltage of 0.82 V and a current of 58 μA/cm2.

IT 9080-67-5D, Polychloromethylstyrene, reaction products with N,N,N',N'-tetramethylethylenediamine
(composite membranes contg. conducting polymers and, for batteries)
RN 9080-67-5 HCA
CN Benzene, (chloromethyl)ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 30030-25-2
CMF C9 H9 Cl
CCI IDS





IC ICM H01M010-40
ICS H01B001-12; H01B001-20
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST Neosepta AM1 polypyrrole platinum battery
IT Batteries, primary
(conducting polymer-ion exchanger composite)
IT 110-18-9D, N,N,N',N'-Tetramethylethylenediamine, reaction products with polychloromethylstyrene 9002-98-6 9080-67-5D, Polychloromethylstyrene, reaction products with N,N,N',N'-tetramethylethylenediamine 25053-27-4, Poly(vinyl sulfonic acid) sodium salt 82375-86-8, Neosepta AFN 82442-25-9 107721-13-1, Neosepta AM1 117548-30-8, Acrylonitrile-chloromethylstyrene copolymer trimethylamine salt
(composite membranes contg. conducting polymers and, for batteries)
IT 25067-58-7, Polyacetylene 25168-37-0, Poly(p-phenylene diamine) 30604-81-0, Polypyrrole 72945-66-5, Poly(N-methyl pyrrole) 89761-73-9 91201-85-3
(composite membranes contg. ion exchangers and, for batteries)

L35 ANSWER 6 OF 8 HCA COPYRIGHT 2007 ACS on STN
AN 109:182718 HCA Full-text
TI A metal/metal salt solid-state reference electrode, method for its preparation, and a pH sensor containing it
IN Heider, John Edward; Kinlen, Patrick John
PA Monsanto Co., USA
SO Eur. Pat. Appl., 9 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 267892	A2	19880518	EP 1987-870157	19871112
EP 267892	A3	19901031		
R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
AU 8781161	A	19880519	AU 1987-81161	19871112
AU 599434	B2	19900719		
JP 63135853	A	19880608	JP 1987-286418	19871112
BR 8706125	A	19880621	BR 1987-6125	19871112
CA 1285614	C	19910702	CA 1987-551623	19871112
US 4908117	A	19900313	US 1989-304007	19890130
PRAI US 1986-929879	A	19861113		

AB The electrode is in contact with an immobilized electrolyte, and there is a coating of a perfluorocarbon copolymer cation-exchange polymer on the immobilized electrolyte. A dip-coating method is used in manuf. The pH sensor has a sensing portion and a support of elec. nonconductive material. It has a junction-type solid state metal/metal oxide in contact with the support in combination with (b) a Ag/AgCl ref. electrode in contact with the support wherein the ref. electrode has an immobilized electrolyte in contact with Ag/AgCl, and (c) a coating of a perfluorocarbon copolymer cation-exchange polymer

on the sensing portion of the pH sensor. In this way, the migration of the electrolyte away from the electrode is prevented.

IT 9080-67-5D, Polyvinylbenzyl chloride, quaternized with triethylamine
(immobilized electrolyte, in metal/metal salt solid-solid ref. electrode)

RN 9080-67-5 HCA

CN Benzene, (chloromethyl)ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 30030-25-2
CMF C9 H9 Cl
CCI IDS

D1—CH_2—Cl

D1—CH═CH_2

IC ICM G01N027-30

CC 79-2 (Inorganic Analytical Chemistry)

ST ref electrode solid state; pH sensor solid state electrode

IT Coating materials
(fluoropolymer, in ref. electrodes with immobilized electrolyte)

IT Electrodes
(ref., solid-state)

IT 9080-67-5D, Polyvinylbenzyl chloride, quaternized with triethylamine
(immobilized electrolyte, in metal/metal salt solid-solid ref. electrode)

L35 ANSWER 7 OF 8 HCA COPYRIGHT 2007 ACS on STN

AN 107:8072 HCA Full-text

TI Design of charge-mosaic membrane

AU Kawato, Hiroshi; Kakimoto, Masaaki; Tanioka, Akihiko; Inoue, Takashi

CS Tokyo Inst. Technol., Tokyo, Japan

SO Kenkyu Hokoku - Asahi Garasu Kogyo Gijutsu Shoreikai (1986), 49,

77-82
CODEN: AGKGAA; ISSN: 0365-2599
DT Journal
LA Japanese
AB A polymer film with regularly phase-sepd. structure was prepd. by soln. casting of poly(vinylbenzyl chloride) (I) and acrylonitrile-styrene copolymer (II). The structure had a characteristic feature of periodicity and dual connectivity of phases. Both phases were crosslinked by a series of chem. modifications, the I phase being quaternized and that of II sulfonated. The modified film obtained exhibited reverse osmosis and selective permeability (permeable only to electrolytes).
IT 9080-67-5D, Poly(vinylbenzyl chloride), quaternized
(phase-sepd. membrane compns. contg. sulfonated acrylonitrile-styrene copolymer and)
RN 9080-67-5 HCA
CN Benzene, (chloromethyl)ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 30030-25-2
CMF C9 H9 Cl
CCI IDS

D1—CH_2—Cl

D1—CH═CH_2

CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 38
IT 9080-67-5D, Poly(vinylbenzyl chloride), quaternized
(phase-sepd. membrane compns. contg. sulfonated acrylonitrile-styrene copolymer and)

L35 ANSWER 8 OF 8 HCA COPYRIGHT 2007 ACS on STN
AN 85:109641 HCA Full-text
OREF 85:17609a,17612a
TI Ion-exchange membranes having good durability
IN Sata, Toshikatsu; Izuo, Ryuji; Takada, Kuniaki; Murakami, Shoji

PA Tokuyama Soda Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 38 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 51014887	A	19760205	JP 1974-86032	197407 29
	JP 57054175	B	19821117		
PRAI	JP 1974-86032	A	19740729		

AB Ion exchangers are coated with thin layers of nonionic polymer and top-coated with thin layers of ion exchangers having opposite charges to those of the 1st ion exchangers to give ion exchangers having good durability. Thus, a PVC fabric was impregnated with a mixt. of styrene (I) 95, 55% divinylbenzene 5, powd. PVC 100, dioctyl phthalate 25, and Bz2O2, heated, treated with a mixt. of CCl4 500, PhCH2Cl 40, and AlCl3 34 g, washed with MeOH, sulfonated with 98% H2SO4 at 60°, neutralized, immersed 1 min in I, uv-irradiated 10 min to form 0.0002-cm coatings, immersed 24 hr in a 2% soln. of poly(chloromethylstyrene) [9080-67-5] in C6H6 at 35°, treated 10 min with TiCl4, and immersed 24 hr in 30% aq. Me3N to give a membrane having Ca-Na selectivities 0.12 and 0.12 before and after 1 month of use, resp., resistivities 3.2 and 3.2 Ω-cm2, resp., transport no. 0.99 and 0.99, resp., and diffusion consts. of NaCl 4.2 + 10-7 and 4.3 + 10-7 cm/sec, resp.

IT 9080-67-5D, Benzene, (chloromethyl)ethenyl-, homopolymer, reaction products with trimethylamine
(anion exchangers, coatings on nonionic polymer-coated cation-exchange membranes, for improved durability)

RN 9080-67-5 HCA
CN Benzene, (chloromethyl)ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 30030-25-2
CMF C9 H9 Cl
CCI IDS

D1—CH_2—Cl

D1—CH═CH_2

IC B01J; B01D; C08J
CC 37-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 61, 72
IT 9080-67-5D, Benzene, (chloromethyl)ethenyl-, homopolymer, reaction products with trimethylamine 25232-41-1 26336-38-9 26877-88-3D, Pyridine, 4-ethenyl-, polymer with ethenyl acetate, hydrolyzed
(anion exchangers, coatings on nonionic polymer-coated cation-exchange membranes, for improved durability)